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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/590,855	08/25/2006	Naohiro Yoshida	129200	4180

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EXAMINER	
SHABMAN, MARK A	

ART UNIT	PAPER NUMBER
2856	

MAIL DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/590,855	YOSHIDA, NAOHIRO	
	Examiner	Art Unit	
	Mark Shabman	2856	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 August 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-9* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-9* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *25 August 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *8/25/2006, 6/21/2007*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 2 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The term "certain position" in line 3 is unclear. A certain position could be any point within the apparatus or not even part of the invention at all.

The claimed "said pressure monitoring device" does not disclose which of the pressure monitoring devices is being referred to. A plurality is mentioned previously in the preceding claim, so it must be clear which one this is referring to.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rolker US Patent 4,825,198 (hereinafter referred to as Rolker) in view of Yanagisawa US Patent 6,167,749 B1 (hereinafter referred to as Yanagisawa).

Regarding **claim 1**, Rolker discloses a method and apparatus for testing the tightness of two valves arranged in a fluid line. The embodiment as depicted in figure 2 of the drawings comprises a main valve V_1, a second valve located downstream from the first, V_2, between them forming a line 4 which reads on the "gas supply channel" as claimed. There further exists means for monitoring the pressure within line 4 in the pressure sensing device 5 (column 5 lines 34-43). The pressure within line 4 is initially set to a predetermined pressure which is lower than the upstream pressure as described in column 2 lines 1-10 or column 8 lines 46-49, thus the pressure flowing through would need to be reduced. Rolker does not disclose a "depressurization treatment device" for depressurizing the inside of the supply channel as claimed.

Yanagisawa discloses a method and apparatus for detecting a gas leak in which an airtight area in communication with a valve to be tested is evacuated and pressure readings are subsequently taken (column 1 lines 41-50). The device used for the evacuation is described and seen in figure 1 as an evacuation pump 16 which is located downstream of the valves to be tested V_1-V_5. It would have been obvious to one of ordinary skill in the art at the time of invention to use an evacuation pump such as that in Yanagisawa in the system of Rolker as a "depressurization treatment" device to lower the pressure (depressurize) of the supply channel to the desired pressure for monitoring via means of monitoring devices, without having to introduce any additional elements into the test area which could also leak, causing false results.

Figure 1 of the drawings of Rolker show the controller of the system which is described in detail in column 6 lines 62-69 and summarized in column 2 lines 56-69.

This "determination device" allows the line 4 to fill with fluid under pressure and closes all valves V_1, and V_2 in order to take determine the operating state of the valves. Based on the changing pressure of detected by unit 5, the system can determine which, if either, of the valves is leaking.

There only exists a single "pressure monitoring device" in Rolker for determining the pressure of the sealed space. The invention as disclosed by Yanagisawa discloses the use of multiple pressure gauges to measure the pressure at different points. Column 3 lines 37-49 describe the pressure gauges and their ratings as being higher than the expected highest pressure in the system. Since the pressure can fluctuate, it would have been obvious to one of ordinary skill in the art at the time of invention to use more than a single pressure gauge, with different ranges, in the system to account for higher or lower pressures than average. This would allow for greater precision in the system since using smaller, more accurate ranges to determine even the slightest leaks in the valves.

Regarding **claim 2**, once the pressure in the supply line has been set, the pressure monitoring device is selected to monitor the pressure as claimed. The pressure in the system could be adjusted by the evacuation pump of Yanagisawa which would result in the pressure of the supply channel being "attained by depressurization" as claimed.

Regarding **claim 3**, the process of Rolker describes in the background of the invention a method of determining which valve is leaking by monitoring a pressure of the channel, wherein an increase in pressure determines a leak in the upstream valve

and a decrease determines a leak in the downstream valve (column 2 lines 1-11). Further, Rolker states that by setting a limit pressure in the channel, then shutting the valves and taking a reading after a holding time will determine that the upstream valve is tight when the measured pressure is below the limit or the downstream valve is tight when the measured pressure is above the limit (column 8 lines 53-58). This could also be taken as a leak exists in the first valve when the pressure rises to or above the preset limit and a leak exists in the second valve (or supply channel) when the pressure falls to or below the preset limit.

Regarding **claim 4**, the process of Rolker describes in the background of the invention a method of determining which valve is leaking by monitoring a pressure of the channel, wherein an increase in pressure determines a leak in the upstream valve and a decrease determines a leak in the downstream valve (column 2 lines 1-11). Further, Rolker states that by setting a limit pressure in the channel, then shutting the valves and taking a reading after a holding time will determine that the upstream valve is tight when the measured pressure is below the limit or the downstream valve is tight when the measured pressure is above the limit (column 8 lines 53-58). This could also be taken as a leak exists in the first valve when the pressure rises to or above the preset limit and a leak exists in the second valve (or supply channel) when the pressure falls to or below the preset limit.

Regarding **claim 5**, the test fluid in the system of Rolker would have to be disposed of or stored after the testing is complete since it cannot merely disposed of into the air. Yanagisawa shows the test fluid evacuated to a gas disposal plant which

would be one form of a "recovery tank" as claimed. Since the gas source is a pressurized tank, it would have been obvious to one of ordinary skill in the art at the time of invention to store the gas in a similar pressurized tank or even return it to the source tank in order to ensure there is enough space for storage. To do this, the gas would have to be compressed and driven back into the tank. A number of compressors could be used, including a turbine compressor with a pump to fill/refill the tank.

Regarding **claim 6**, the "shutdown valve" and "main valve" of the system would need to be closed during the depressurization of the system in order to maintain the predetermined lower pressure for testing as described previously.

Regarding **claim 7**, Rolker discloses a method and apparatus for testing the tightness of two valves arranged in a fluid line. The embodiment as depicted in figure 2 of the drawings comprises a main valve V_1, a second valve located downstream from the first, V_2, between them forming a line 4 which reads on the "gas supply channel" as claimed. There further exists means for monitoring the pressure within line 4 in the pressure sensing device 5 (column 5 lines 34-43). The pressure within line 4 is initially set to a predetermined pressure which is lower than the upstream pressure as described in column 2 lines 1-10 or column 8 lines 46-49, thus the pressure flowing through would need to be reduced. Rolker does not disclose a "depressurization treatment device" for depressurizing the inside of the supply channel as claimed.

Yanagisawa discloses a method and apparatus for detecting a gas leak in which an airtight area in communication with a valve to be tested is evacuated and pressure

readings are subsequently taken (column 1 lines 41-50). The device used for the evacuation is described and seen in figure 1 as an evacuation pump 16 which is located downstream of the valves to be tested V_1-V_5. It would have been obvious to one of ordinary skill in the art at the time of invention to use an evacuation pump such as that in Yanagisawa in the system of Rolker as a "depressurization treatment" device to lower the pressure (depressurize) of the supply channel to the desired pressure for monitoring via means of monitoring devices, without having to introduce any additional elements into the test area which could also leak, causing false results.

Figure 1 of the drawings of Rolker show the controller of the system which is described in detail in column 6 lines 62-69 and summarized in column 2 lines 56-69. This "determination device" allows the line 4 to fill with fluid under pressure and closes all valves V_1, and V_2 in order to take determine the operating state of the valves. Based on the changing pressure of detected by unit 5, the system can determine which, if either, of the valves is leaking.

There only exists a single "pressure monitoring device" in Rolker for determining the pressure of the sealed space. The invention as disclosed by Yanagisawa discloses the use of multiple pressure gauges to measure the pressure at different points. Column 3 lines 37-49 describe the pressure gauges and their ratings as being higher than the expected highest pressure in the system. Since the pressure can fluctuate, it would have been obvious to one of ordinary skill in the art at the time of invention to use more than a single pressure gauge, with different ranges, in the system to account for higher or lower pressures than average. This would allow for greater precision in the

system since using smaller, more accurate ranges to determine even the slightest leaks in the valves.

Regarding **claim 8**, the method of Rolker involves providing two valves (i.e. a main valve and a shutdown valve), closing said valves and presetting a limit pressure in between the two valves (column 8 lines 53-58). The preset limit is described as being approximately half of the upstream pressure. There is no specific method used for depressurization of the supply channel mentioned in the disclosure.

Yanagisawa discloses a method and apparatus for detecting a gas leak in which an airtight area in communication with a valve to be tested is evacuated and pressure readings are subsequently taken (column 1 lines 41-50). The device used for the evacuation is described and seen in figure 1 as an evacuation pump 16 which is located downstream of the valves to be tested V_1-V_5. It would have been obvious to one of ordinary skill in the art at the time of invention to use an evacuation pump such as that in Yanagisawa in the system of Rolker as a "depressurization treatment" device to lower the pressure of the supply channel to the desired pressure to allow for a pressure reduction without having to introduce any additional elements into the test area which could also leak, causing false results. Running the pump while the valves are being shut would allow for the pressure to lower inside the "sealed space" to a desired point before closing the shutdown valve and beginning pressure measurements.

By allowing the system to rest for a set amount of time, a variation of pressure may be monitored in between the "main valve" and "shutdown valve" after they have

both been closed as claimed. The "operation state" of the main valve can then be determined as described in column 8 lines 53-58 or column 2 lines 1-11. The predetermined pressure as described in the background would be the point at which the shutdown valve is shut and the "sealed space is depressurized to a pressure range in which the pressure can be detected in a pressure sensor" since at this point the pressure sensor would be used to determine the pressure within the sealed space.

Regarding **claim 9**, the invention as disclosed by Yanagisawa discloses the use of multiple pressure gauges to measure the pressure at different points. Column 3 lines 37-49 describe the pressure gauges and their ratings as being higher than the expected highest pressure in the system. Since the pressure can fluctuate, it would have been obvious to one of ordinary skill in the art at the time of invention to use more than a single pressure gauge in the system to account for higher or lower pressures than average. This would allow for greater precision in the system since using smaller, more accurate ranges to determine even the slightest leaks in the valves.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mark Shabman whose telephone number is (571) 270-3263. The examiner can normally be reached on M-F 7:30am - 5:00pm, EST (Alternating Fridays Off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron Williams can be reached on (571) 272-2208. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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